

LIGHT VEHICLE ATTRIBUTES FOR GPRA 2004 BENEFITS MODELING

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The vehicle attributes for the car and light truck technologies were based on the Office of FreedomCAR and Vehicle Technologies program goals and discussions with transportation program managers. They represent the best estimates available at the time of the modeling (summer of 2002). These attributes have been documented for the past several years and continue to be refined each year, as necessary. The table below contains the attribute values used for the 2004 GPRA transportation program modeling. The values shown in the table are ratios relative to a conventional ICE of the same type. Attributes include the following:

- Vehicle Price
- Range
- Maintenance Cost
- Luggage Space
- Acceleration
- Top Speed
- Fuel Economy

There were several technology changes made from the previous year. The higher fuel economy (2X) hybrid electric vehicle was defined as a diesel-fueled HEV. Flex fuel (E-85) and electric vehicles were not modeled in the 2004 version. Also, 2b trucks were separated from other light trucks in the model. Several updates were made to the actual values in the table compared to the previous year. Those values can be found in the 2003 GPRA methodology report on the EERE website (<http://www.ott.doe.gov/facts/pdfs/appendix2003.pdf>). No methodology report for 2004 has been written.

LDV ATTRIBUTES - Rule to Conventional																										
	SMALL CAR					LARGE CAR					MINIVAN				SUV					CARGO (incl. 2x) TRUCK						
	Market Intro.				Market Matures	Market Intro.				Market Matures	Market Intro.			Market Matures	Market Intro.				Market Matures	Market Intro.				Market Matures		
Advanced Diesel	2004	2010				2005	2010				2006	2010				2004	2010				2003	2008				
Vehicle Price	1.07	1.07				1.07	1.05				1.08	1.07				1.08	1.07				1.10	1.07				
Range	1.20	1.20				1.20	1.20				1.20	1.20				1.20	1.20				1.20	1.20				
Maintenance Cost	1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				
Acceleration	1.10	1.10				1.10	1.10				1.10	1.10				1.10	1.10				1.10	1.10				
Top Speed	0.85	0.85				0.80	0.80				0.80	0.80				1.00	1.00				1.00	1.00				
Luggage Space	1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				
Fuel Economy	1.40	1.40				1.40	1.40				1.40	1.40				1.40	1.40				1.40	1.40				
CNG (Medium)	2006	2015				2007	2015				2008	2015				2008	2015				2007	2015				
Vehicle Price	1.03	1.08				1.04	1.04				1.05	1.05				1.05	1.05				1.10	1.10				
Range	0.66	0.66				0.75	0.75				0.75	0.75				0.75	0.75				0.75	0.75				
Maintenance Cost	0.90	0.90				0.90	0.90				0.90	0.90				0.90	0.90				0.90	0.90				
Acceleration	1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				
Top Speed	1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				
Luggage Space	0.75	0.90				0.85	0.90				0.90	1.00				0.90	1.00				1.00	1.00				
Fuel Economy	1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				1.00	1.00				
Hybrid (A) - Diesel	2011	2015	2025			2010	2015	2025			2011	2015	2025			2010	2015	2025			2012	2015	2025			
Vehicle Price	1.18	1.12	1.05			1.20	1.15	1.05			1.20	1.15	1.05			1.20	1.15	1.05			1.20	1.15	1.05			
Range	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			0.90	0.95	0.95			0.90	0.90	0.95			
Maintenance Cost	1.03	1.03	0.98			1.05	1.03	1.00			1.09	1.05	1.00			1.05	1.03	1.00			1.03	1.03	1.00			
Acceleration	0.90	0.90	0.90			1.00	1.00	1.00			0.90	0.90	0.90			0.90	0.90	0.90			1.00	1.00	1.00			
Top Speed	0.90	0.90	0.90			0.90	0.90	0.90			0.90	0.90	0.90			0.90	0.90	0.90			0.90	0.90	0.90			
Luggage Space	0.95	0.95	0.95			0.95	0.95	0.95			0.90	0.90	1.00			0.90	0.90	0.90			0.80	0.90	0.90			
Fuel Economy	1.50	1.35	2.00			1.50	1.75	2.00			1.50	1.75	2.00			1.50	1.75	2.00			1.50	1.75	2.00			
Hybrid (B)	2004	2010	2015	2020	2030	2004	2010	2015	2020	2030	2004	2010	2015	2020	2030	2004	2010	2015	2020	2030	2006	2010	2015	2020		
Vehicle Price	1.10	1.03	1.03	1.01	1.01	1.10	1.08	1.03	1.01	1.01	1.10	1.08	1.03	1.01	1.01	1.10	1.08	1.03	1.01	1.01	1.10	1.08	1.03	1.01		
Range	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Maintenance Cost	1.03	1.03	1.03	1.00	0.98	1.03	1.03	1.03	1.00	0.90	1.03	1.03	1.03	1.00	1.00	1.03	1.03	1.03	1.00	0.90	1.03	1.03	1.03	0.93		
Acceleration	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Top Speed	0.90	0.90	0.90	0.90	0.90	0.75	0.90	0.90	0.90	0.90	0.75	0.90	0.90	0.90	0.90	0.80	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Luggage Space	0.93	0.92	0.95	0.93	0.92	0.95	0.93	0.92	0.95	0.93	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.95	0.93	1.00		
Fuel Economy	1.25	1.35	1.45	1.50	1.50	1.25	1.35	1.45	1.50	1.50	1.25	1.35	1.45	1.50	1.50	1.25	1.35	1.45	1.50	1.50	1.25	1.35	1.45	1.50		
Fuel Cell (hydrogen)	2018	2020	2025	2030		2016	2020	2025	2030		2014	2020	2025	2030		2012	2015	2020	2025	2030	2012	2020	2025	2030		
Vehicle Price	1.35	1.30	1.15	1.15		1.40	1.25	1.15	1.15		1.35	1.25	1.15	1.15		1.40	1.35	1.25	1.15	1.15	1.35	1.25	1.15	1.15		
Range	0.75	0.75	0.75	0.75		0.90	0.90	0.90	0.90		0.90	0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Maintenance Cost	1.05	1.03	0.93	0.90		1.05	1.05	0.93	0.90		1.10	1.10	0.95	0.90		1.05	1.05	1.03	0.93	0.90	1.05	1.05	0.93	0.90		
Acceleration	1.10	1.10	1.10	1.10		1.00	1.00	1.00	1.00		1.10	1.10	1.10	1.10		1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.00	1.00		
Top Speed	0.90	0.90	0.90	0.90		0.72	0.90	0.90	0.90		0.90	0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Luggage Space	0.90	0.90	0.90	0.90		0.80	0.90	0.90	0.90		0.90	0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.85	0.85		
Fuel Economy	2.50	2.70	3.00	3.00		2.20	2.50	3.00	3.00		2.00	2.50	3.00	3.00		2.00	2.50	3.00	3.00	3.00	2.00	2.50	3.00	3.00		
Fuel Cell (gasoline)						2018	2020	2025	2030		2010	2020	2030			2010	2020	2030								
Vehicle Price						1.40	1.35	1.20			1.35	1.30				1.40	1.35									
Range						1.00	1.00	1.00			1.00	1.00				1.00	1.00									
Maintenance Cost						1.05	1.00	0.93	OUT		1.05	1.00	OUT			1.05	1.00	OUT								
Acceleration						1.00	1.00	1.00	OF		1.00	1.00	OF			1.00	1.00	OF								
Top Speed						1.00	1.00	1.00	MARKET		1.00	1.00	MARKET			1.00	1.00	MARKET								
Luggage Space						0.90	0.90	0.90			0.90	0.90				0.90	0.90									
Fuel Economy						1.30	1.30	1.00			1.40	1.20				1.40	1.20									